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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,683	11/01/2001	Robert A. Holzl	20451.12	4596

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EXAMINER	
WYSZOMIERSKI, GEORGE P	

ART UNIT	PAPER NUMBER
1742	

DATE MAILED: 01/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/035,683	SHINAVSKI ET AL.	
	Examiner	Art Unit	
	George P Wyszomierski	1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) *1-27* is/are withdrawn from consideration.

5)☒ Claim(s) *35-48* is/are allowed.

6)☒ Claim(s) *28-33,49 and 50* is/are rejected.

7)☒ Claim(s) *34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 28, 29, 32, 49 and 50 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Keem et al. (U.S. Patent 4,619,865).

Keem discloses depositing multilayers of materials including a Group VI refractory metal and metal compounds such as tungsten carbide. The layers are of a thickness as recited in instant claims 29, 49 and 50; see example 2 of Keem. Further, column 3, lines 52-62 of Keem indicate that the prior art method results in structures that lack extended planes through which fractures can propagate. Thus, it appears that the method of Keem is equivalent to that as presently claimed.

Keem has no specific statement that the thickness of the compound layers are such that they will "arrest the growth of the crystallites of the primary film and prevent epitaxial growth between adjoining primary microcrystalline films" as required by the instant claims. However, because the composition of the multilayers, the thickness thereof, and the method of deposition in Keem may be the same as in the present claims, it is a reasonable assumption that any

properties which result from the thickness of these layers would likewise be the same in either instance. Thus, at a minimum, a prima facie case of obviousness has been established between the process as disclosed by Keem et al. and that as presently claimed.

4. Claims 30, 31, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keem et al.

Keem, discussed supra, does not disclose any specific examples of a chemical vapor deposition process or of depositing tungsten or tungsten boride. However, Keem column 4, lines 45-48 indicates that a CVD process is within the purview of the prior art. Further, the paragraph which overlaps columns 2-3 of Keem indicates that deposition of the materials recited in instant claims 31 and 33 would be within the purview of the Keem et al. process. Consequently, a prima facie case of obviousness is established between the disclosure of Keem et al. and the invention as presently claimed.

5. Claims 28, 29, 30, 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S. Patent 5,538,816).

Hashimoto discloses chemical vapor deposition of layers which may comprise, e.g. chromium and a chromium compound; see Hashimoto column 12, lines 49-56. In the examples of Hashimoto, the individual layers are of a thickness as recited in instant claims 29, 49 and 50. Because the thickness used in the prior art is consistent with the preferred embodiments of the present claims, it is assumed that this thickness meets the limitations as defined in lines 10-12 of instant claim 28. Hashimoto does not specify repeating an alternate deposition of the two layers as set forth in lines 13-15 of claim 28. However, if the "required thickness" of line 15 of claim 28 were simply the thickness of two layers as disclosed by Hashimoto, then the process

as claimed would fall within the purview of the prior art. Thus, in the absence of any numerical limitation on this "required thickness", the claimed invention is held to be at best an obvious variant of what is disclosed by Hashimoto et al.

6. Claims 28, 30, 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garg et al. (U.S. Patent 4,855,188).

Garg discloses chemical vapor deposition of films of tungsten and tungsten carbide upon a substrate. The thickness of the carbide films of Garg is far greater than any shown in the present application, and thus it is a reasonable assumption that such films would meet the thickness limitations of lines 10-12 of instant claim 28. With respect to lines 13-15 of claim 28, Garg does not specify repeating an alternate deposition of the metal and carbide layers. However, if the "required thickness" of line 15 of claim 28 were simply the thickness of two layers as disclosed by Garg, then the process as claimed would fall within the purview of the prior art. Thus, in the absence of any numerical limitation on this "required thickness", the claimed invention is held to be at best an obvious variant of what is disclosed by Garg et al.

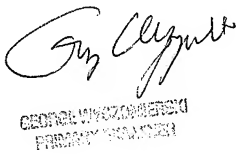
7. In a response filed October 31, 2003, Applicant alleges that the failure of the prior art to disclose the claimed limitation that the prior art layers will "arrest the growth...between adjoining primary microcrystalline films" renders the claimed process distinct from that of the prior art references. Applicant's comments have been carefully considered, but are not persuasive of patentability because, as stated in the rejections supra, the process steps and the materials deposited in the prior art are equivalent to those deposited in the present invention. It is thus a reasonable assumption that any properties of the films resulting from such a process would be the same in either the prior art or the claimed invention.

8. Claim 34 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 35-48 are allowable over the prior art of record.

9. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. Effective October 1, 2003, all patent application related correspondence transmitted by facsimile must be directed to the central facsimile number, (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1700.



GPW
January 7, 2004